

**Abstract**

An XDSL signal distribution system is provided having a regenerator unit located a predetermined distance from a central office XTU unit for extending the distribution reach of the system. The regenerator is arranged to  
5 decode the payload of transmitted XDSL signals into base digital data before repackaging and regeneration onto a twisted pair copper cable. This allows the regenerator to selectively reformat the XDSL signals into a desired protocol format suitable for either an ATM protocol layer, or direct transmission. In addition, the  
10 regenerator can retransmit the XDSL signals at a fixed or variable transmission rate to optimize data through-put or system reach.